

THE WEEVIL *BARYPEITHES PELLUCIDUS* (COLEOPTERA: CURCULIONIDAE) FEEDS ON NORTHERN RED OAK, *QUERCUS RUBRA*, SEEDLINGS¹

Jimmy R. Galford²

ABSTRACT: The weevil *Barypeithes pellucidus* was found in association with dying seedlings of northern red oak, *Quercus rubra*. Laboratory observations confirmed that adult weevils readily fed on all parts of young oak seedlings.

The weevil *Barypeithes pellucidus* (Boheman) is an introduced species that was reported by Blatchley and Leng (1916) to attack strawberries in Europe. No other hosts have been reported. Although abundant enough to be included in a manual of common beetles (Dillon and Dillon 1961), the host of this weevil in the United States was not known.

While studying the impact of insects on oak seedling establishment and survival, I found *B. pellucidus* in association with dying seedlings of northern red oak, *Quercus rubra* L. Laboratory studies demonstrated that this weevil feeds on all parts of the seedlings.

MATERIALS AND METHODS

In May 1985, approximately 200 first-year seedlings of red oak were located and marked with flag wires in the understory of a 20-year-old, 0.5-hectare red oak plantation in central Ohio. The seedlings were checked weekly through June for insect damage. Dead and dying seedlings were removed with root systems intact and examined in the laboratory to determine the cause of mortality. Some of the insects found on the seedlings were placed in 150X20 mm glass petri dishes; some were placed on potted, live, red oak seedlings reared in a greenhouse. The petri dishes were lined with moistened filter paper on which insect-free red oak seedlings 12-16 cm long were placed. The potted seedlings were covered with glass jars to prevent insect escape. Observations of insect feeding activity were made on two petri dishes with three adult *B. pellucidus* per dish and on one pot containing four seedlings and five adult weevils.

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²Northeastern Forest Experiment Station, Forestry Sciences Laboratory, 359 Main Road, Delaware, OH 43015.

RESULTS AND DISCUSSION

B. pellucidus was found associated with 8 dead or dying red oak seedlings, the only seedling mortality from causes other than rodent damage. Rodents destroyed many seedlings by digging them up to obtain the acorns still attached to the plants. In 6 instances, 2-4 adult weevils were found near the root collar. The root collar had been girdled on 3 of the seedlings. In 2 instances, girdling occurred on the stem at the crown, and on one seedling, the taproot was girdled 10-12 mm below the root collar. One adult weevil was found associated with a dying seedling that had been root damaged by beetle larvae, and two weevils were found associated with the remains of a seedling damaged by rodents.

During examinations of the seedlings in the field, an adult *B. pellucidus* was observed on an oak seedling leaf that exhibited chewing damage. Comparison of the damage with weevil-damaged leaves in laboratory tests confirmed the feeding damage was from *B. pellucidus*.

In the laboratory, adult *B. pellucidus* fed readily on roots, stems, and leaves of red oak seedlings in the petri dishes and on potted plants. Three of the four potted seedlings were girdled or the stems chewed so extremely that the seedlings were almost dead after 3 weeks. The stem on one of the four potted seedlings was partially girdled but continued to grow.

All of the adult weevils were dead within 3 weeks; most were covered with a white fungus. Four weeks later, two apparently mature *B. pellucidus* larvae were found in one petri dish that contained a complete but damaged oak seedling still attached to the acorn. Examination revealed that the acorn cotyledons had been reduced to a reddish-brown powder by the larvae. This single observation shows that this is one site where the larvae can develop. Further studies are needed to ascertain larval feeding habits.

Although red oak has definitely been established as a host for *B. pellucidus*, we need to learn much more about the biology of this weevil and its impact on oak seedling establishment and survival.

LITERATURE CITED

- Blatchley, W.W. and C.W. Leng. 1916. Rhynchophora or weevils of North Eastern America, Nature Publishing Company, Indianapolis, Indiana. 682 pp.
Dillon, E.S. and L.S. Dillon. 1961. A Manual of Common Beetles of Eastern North America. Row, Peterson and Company, Elmsford, NY. 884 pp.